Remarks

Claims 1-10, 12, 14, and 15 are pending. Applicants propose amending claim 1 to incorporate the requirement that the recited compounds are used in an interlayer of a photographic material to prevent migration of oxidized developer to other light sensitive layers. Support for this feature is found on page 1 and page 17. Applicants further propose amending claims 14 and 15 to delete the reference to formula VI. No new matter has been added.

The amendment to claim 1 is intended to place the case in condition for allowance by incorporating a patentable feature that has been argued previously. The feature will not require a new search by the Examiner. Since the amendment will further prosecution, Applicants submit that good cause exists to enter the amendment even though presented after final rejection.

The Examiner rejects claims 1-10 and 12 under 35 U.S.C. 102 as being anticipated by U.S. Pat. No. 5,597,854 ("Birbaum et al."). Applicants respectfully traverse this rejection.

The Examiner states that Birbaum discloses a silver halide photographic material containing benzofuranones. This statement assumes that the triazine UV-absorbers disclosed by Birbaum can also contain stabilizers of classes 1-14, which includes benzofuranones. Stabilizers 1-14 are taught as optionally added to the Birbaum compositions since they are active in polymer materials. With the exception of the hydroquinones (class 1.3), **none of the compounds 1-14 had been shown to function as an oxidized developer scavenger. This problem was not addressed in the Birbaum patent.**

To define the benzofuranones as stabilizers (class14) Birbaum refers to a number of patents, such as, for example:

> **U.S. Pat. Nos. 4,325,863 and 4,338,244** both entitled "Benzofuranone or indolinone compounds useful as stabilizers for organic materials"; **U.S. Pat. No. 5,175,312** entitled 3-phenylbenzofuran-2-ones and describing organic material stabilized by means of 3-phenylbenzofuran-2-ones against thermal, oxidative and actinic degradation and to the

use of 3-phenylbenzofuran-2-ones for stabilizing organic materials; **U.S. Pat. No. 5,216,052** entitled "Bisbenzofuran-2-one" and describing the use of Bisbenzofuran-2-one for stabilising organic materials and to the stabilised organic material thereby obtained; **U.S. Pat. No. 5,252,643** entitled "Thiomethylated benzofuran-2-ones" describing compounds which are benzofuran-2-ones having two organothiomethyl substituents directly attached to the benzo ring are suitable for stabilizing organic materials against thermal, oxidative or light-induced degradation.

The above-mentioned patents clearly show that benzofuranone compounds have been added to the triazine UV-absorbers to further stabilize organic material. None of the patents give any hint that benzofuranone compounds can function as developed oxidizer scavengers.

The first part (columns 1-34) of Birbaum deals with the use of triazine UV-absorbers for stabilizing organic material. In the middle of column 34 (starting with line 25) it is said that the triazines can also be used in photographic material. Only the triazines are addressed. There is no reference to the addition of stabilizers 1-14. Furthermore it is said that the triazine UV-absorbers can be combined with further UV-absorbers when used in photographic material. In other words, the part of Birbaum dealing with photographic material does not list benzofuranones as an additional component. **In fact some of the compounds of classes 1-14 will have a negative effect on the stability of the dyes**. Especially negative effects would result from the use of the compounds listed in class 1.19 aminic antioxidants including phenolic compounds, which would behave as cyan couplers if incorporated into photographic material. See column 40 formula (E) and column 41 formula (E-7) and (E-8).

Claim 1 has been amended to define a process for preventing the migration of the oxidised developer in a color photographic material from the light sensitive silver halide emulsion layer in which it has been formed into another silver halide emulsion layer containing color couplers comprising the steps of **incorporating** a compound of the formula (I) into interlayer between the light sensitive silver halide emulsion layers and **scavenging** the oxidized form of a developer when migrating from the light sensitive silver halide emulsion layer in which it has been formed to the interlayer. The teachings in Birbaum do not disclose or suggest

practicing a process as claimed herein. Birbaum does not anticipate or render the claimed process unpatentable.

The Examiner rejects claims 14 and 15 under 35 U.S.C. 103 as being unpatentable over Birbaum in view of U.S. Pat. No. 4,325,863 ("Hinsken et al."). Applicants respectfully traverse this rejection.

The Examiner noted that the rejection was premised on the compounds of formula VI. Compound claims 14 and 15 have been amended to delete formula VI and thus $R_{7'}$ and $R_{8'}$. In view of the Examiner's comments, Applicants submit that the claims are now in condition for allowance.

Applicants submit that the instant application is now in condition for allowance. In the event that minor amendments will further prosecution, Applicants request that the Examiner contact the undersigned representative.

Respectfully submitted,

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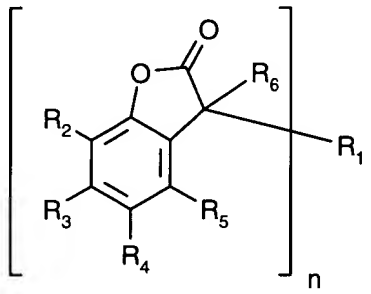
Amended Claims with underlining and bracketing

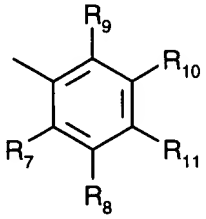
1. (2X amended) ~~Process~~ A process for preventing the migration of ~~the~~ oxidised developer in a colour photographic material from a light sensitive silver halide emulsion layer in which it has been formed into another silver halide emulsion layer containing colour couplers comprising the steps of: ~~one colour sensitive layer to another by~~ incorporating a compound of the formula I ~~into said material~~



(I),

wherein, if n = 1,

R_1 is a cyclic residue selected from naphthyl, phenanthryl, anthryl, 5,6,7,8-tetrahydro-2-naphthyl, 5,6,7,8-tetrahydro-1-naphthyl, thienyl, benzo[b]thienyl, naphtho[2,3-b]thienyl, thianthrenyl, dibenzofuryl, chromenyl, xanthenyl, phenoxathiinyl, pyrrolyl, imidazolyl, pyrazolyl, pyrazinyl, pyrimidinyl, pyridazinyl, indolizinyl, isoindolyl, indolyl, indazolyl, purinyl, quinolizinyl, isoquinolyl, quinolyl, phthalazinyl, naphthyridinyl, quinoxalinyl, quinazolinyl, cinnolinyl, pteridinyl, carbazolyl, -carbolinyl, phenanthridinyl, acridinyl, perimidinyl, phenanthrolinyl, phenazinyl, isothiazolyl, phenothiazinyl, isoxazolyl, furazanyl, biphenyl, terphenyl, fluorenyl or phenoxazinyl, each of which is unsubstituted or substituted by C_1-C_4alkyl, C_1-C_4alkoxy, C_1-C_4alkylthio, hydroxy, halogen, amino, C_1-C_4alkylamino, phenylamino or di(C_1-C_4-alkyl)amino; or R_1 is a radical of formula II



(II),

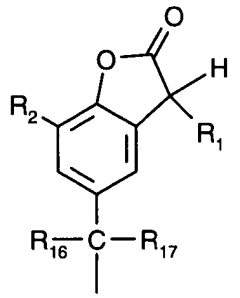
and, if n = 2,

R_1 is unsubstituted or C_1-C_4alkyl- or hydroxy-substituted phenylene or naphthylene; or $-R_{12}$-X-R_{13}- ;

R_2, R_3, R_4 and R_5 are each independently of one another hydrogen; chloro; hydroxy; C_1-C_{25}-alkyl; C_7-C_9phenylalkyl; unsubstituted or C_1-C_4alkyl-substituted phenyl; unsubstituted or C_1-C_4alkyl-substituted C_5-C_8cycloalkyl; C_1-C_{18}alkoxy; C_1-C_{18}alkylthio; C_1-C_4alkylamino; di(C_1-C_4-alkyl)amino; C_1-C_{25}alkanoyloxy; C_1-C_{25}alkanoylamino; C_3-C_{25}alkenoyloxy; C_3-C_{25}alkanoyloxy which is interrupted by oxygen, sulphur or $>N-R_{14}$; C_6-C_9cycloalkylcarbonyloxy; benzoyloxy or C_1-C_{12}alkyl-substituted benzoyloxy; or R_2 and R_3, or R_3 and R_4, or R_4 and R_5, together with the linking carbon atoms, form a benzene ring;

or R_4 is $-C_mH_{2m}-COR_{15}$, $-O-(C_vH_{2v})-COR'_{15}$, $-O-(CH_2)_q-OR_{32}$, $-OCH_2-CH(OH)-CH_2-R'_{15}$, $-OCH_2-CH(OH)-CH_2-OR_{32}$, or $-(CH_2)_qOH$;

or, if R_3, R_5 and R_6 are hydrogen, R_4 is additionally a radical of formula III



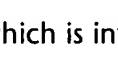
(III),

wherein R_1 is as defined above for n = 1;

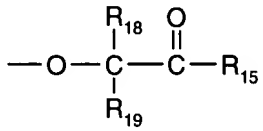
R_6 is hydrogen or, when R_4 is hydroxy, R_6 can also be C_1-C_{25}alkyl or C_3-C_{25}alkenyl;

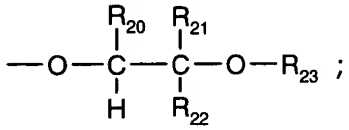
R_7 and R_9, are each independently of one another hydrogen; halogen; C_1-C_{25}alkyl; C_2-C_{25}alkyl which is interrupted by oxygen, sulphur or $>N-R_{14}$; C_1-C_{25}alkylthio; C_3-C_{25}-alkenyl; C_3-C_{25}alkenyloxy; C_3-C_{25}alkynyl; C_3-C_{25}alkynyloxy; C_7-C_9phenylalkyl; C_7-C_9phenylalkoxy; unsubstituted or C_1-C_4alkyl-substituted phenyl; unsubstituted or C_1-C_4alkyl- substituted phenoxy; unsubstituted or C_1-C_4alkyl-substituted C_5-C_8cycloalkyl; unsubstituted or C_1-C_4alkyl-substituted C_5-C_8cycloalkoxy; C_1-C_4alkylamino; di(C_1-C_4alkyl)amino; C_1-C_{25}alkanoyl; C_3-C_{25}alkanoyl which is interrupted by oxygen, sulphur or $>N-R_{14}$; C_1-C_{25}alkanoylamino; C_3-

C_{25}alkenoyl; C_3-C_{25}alkenoyl which is interrupted by oxygen, sulphur or  ; C_3-C_{25}-

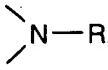
alkenoyloxy; C_3-C_{25}alkenoyloxy which is interrupted by oxygen, sulphur or  ; C_6-C_9-

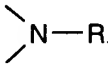
cycloalkylcarbonyl; C_6-C_9cycloalkylcarbonyloxy; benzoyl or C_1-C_{12}alkyl-substituted benzoyl;

benzoyloxy or C_1-C_{12}alkyl-substituted benzoyloxy;  or

 ;

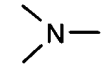
R_8, R_{10} and R_{11} are each independently of one another hydrogen; halogen; hydroxy; C_1-C_{25}alkyl;

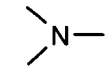
C_2-C_{25}alkyl which is interrupted by oxygen, sulphur or  ; C_1-C_{25}alkoxy; C_2-C_{25}alkoxy

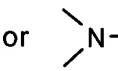
which is interrupted by oxygen, sulphur or  ; C_1-C_{25}alkylthio; C_3-C_{25}-alkenyl; C_3-

C_{25}alkenyloxy; C_3-C_{25}alkynyl; C_3-C_{25}alkynyloxy; C_7-C_9phenylalkyl; C_7-C_9phenylalkoxy;
unsubstituted or C_1-C_4alkyl-substituted phenyl; unsubstituted or C_1-C_4alkyl- substituted
phenoxy; unsubstituted or C_1-C_4alkyl-substituted C_5-C_8cycloalkyl; unsubstituted or C_1-C_4alkyl-
substituted C_5-C_8cycloalkoxy; C_1-C_4alkylamino; di(C_1-C_4alkyl)amino; C_1-C_{25}alkanoyl; C_3-

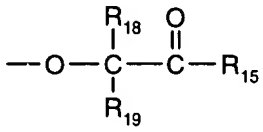
C_{25}alkanoyl which is interrupted by oxygen, sulphur or  ; C_1-C_{25}alkanoyloxy; C_3-

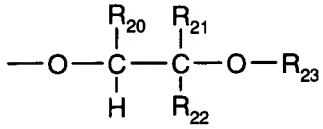
C_{25}alkanoyloxy which is interrupted by oxygen, sulphur or  ; C_1-C_{25}alkanoylamino;

C_3-C_{25}alkenoyl; C_3-C_{25}alkenoyl which is interrupted by oxygen, sulphur or  ; C_3-C_{25}-

alkenoyloxy; C_3-C_{25}alkenoyloxy which is interrupted by oxygen, sulphur or  ; C_6-C_9-

cycloalkylcarbonyl; C_6-C_9cycloalkylcarbonyloxy; benzoyl or C_1-C_{12}alkyl-substituted benzoyl;

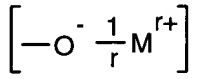
benzoyloxy or C_1-C_{12}alkyl-substituted benzoyloxy;  or

 or, in formula II, R_7 and R_8, or R_8 and R_{11}, together with the linking

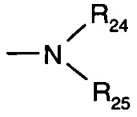
carbon atoms, form a benzene ring;

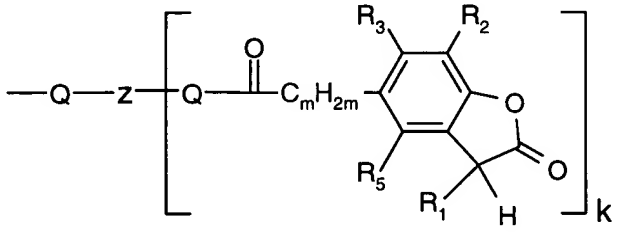
R_{12} and R_{13} are each independently of the other unsubstituted or C_1-C_4alkyl-substituted phenylene or naphthylene;

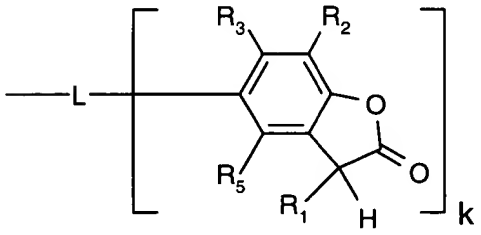
R_{14} is hydrogen or C_1-C_8alkyl;

R_{15} and R'_{15} independently are hydroxy;  ; C_1-C_{20}alkoxy; C_3-C_{20}alkoxy

interrupted by O and/or substituted by a radical selected from OH, phenoxy, C_7-C_{15}alkylphenoxy, C_7-C_{15}alkoxyphenoxy; or are C_5-C_{12}cycloalkoxy; C_7-C_{17}phenylalkoxy; phenoxy;

 ; or a group of the formula IIIa or IIIb

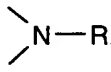
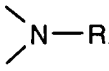
 (IIIa);

 (IIIb);

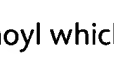
R_{16} and R_{17} are each independently of the other hydrogen, CF_3, C_1-C_{12}alkyl or phenyl, or R_{16} and R_{17}, together with the linking carbon atom, are a C_5-C_8cycloalkylidene ring which is unsubstituted or substituted by 1 to 3 C_1-C_4alkyl;

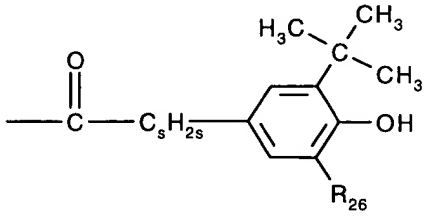
R_{18} and R_{19} are each independently of the other hydrogen, C_1-C_4alkyl or phenyl;

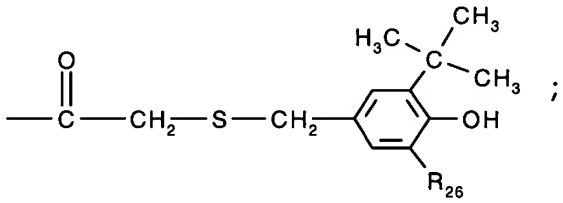
R_{20} is hydrogen or C_1-C_4alkyl;

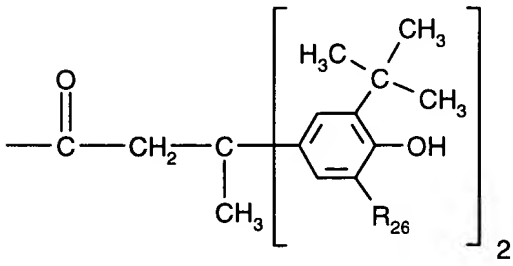
R_{21} is hydrogen; unsubstituted or C_1-C_4alkyl-substituted phenyl; C_1-C_{25}alkyl; C_2-C_{25}alkyl which is interrupted by oxygen, sulphur or  ; C_7-C_9phenylalkyl which is unsubstituted or substituted at the phenyl moiety by 1 to 3 C_1-C_4alkyl; C_7-C_{25}phenylalkyl which is interrupted by oxygen, sulphur or  and which is unsubstituted or substituted at the phenyl moiety by 1 to 3 C_1-C_4alkyl; or R_{20} and R_{21}, together with the linking carbon atoms, form a C_5-C_{12}cycloalkylene ring which is unsubstituted or substituted by 1 to 3 C_1-C_4alkyl;

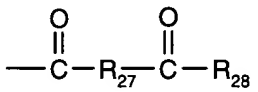
R_{22} is hydrogen or C_1-C_4alkyl;

R_{23} is hydrogen; C_1-C_{25}alkanoyl; C_3-C_{25}alkenoyl; C_3-C_{25}alkanoyl which is interrupted by oxygen, sulphur or  ; C_2-C_{25}alkanoyl which is substituted by a di(C_1-C_6alkyl)phosphonate group; C_6-C_9cycloalkylcarbonyl; thenoyl; furoyl; benzoyl or C_1-C_{12}alkyl-substituted benzoyl;

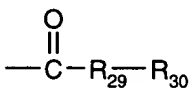
 ;

 ;



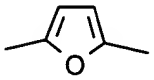
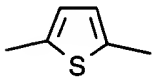


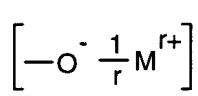
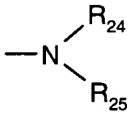
or

 ;

R_{24} and R_{25} are each independently of the other hydrogen or C_1-C_{18}alkyl;

R_{26} is hydrogen or C_1-C_8alkyl;

R_{27} is a direct bond; C_1-C_{18}alkylene; C_2-C_{18}alkylene which is interrupted by oxygen, sulphur or  ; C_2-C_{18}alkenylene; C_2-C_{20}alkylidene; C_7-C_{20}phenylalkylidene; C_5-C_8cycloalkylene; C_7-C_8bicycloalkylene; unsubstituted or C_1-C_4alkyl-substituted phenylene;  or  ;

R_{28} is hydroxy,  , C_1-C_{18}alkoxy or  ;

R_{29} is oxygen or -NH-;

R_{30} is C_1-C_{18}alkyl or phenyl;

R_{31} is hydrogen or C_1-C_{18}alkyl;

R_{32} is C_1-C_{18}alkanoyl; C_1-C_8alkanoyl substituted by phenyl or C_7-C_{15}alkylphenyl; C_3-C_{18}alkenoyl; cyclohexylcarbonyl; or naphthylcarbonyl;

L is a linking group of valency (k+1) and is as a divalent group

-O-;

Q-C_2-C_{12}alkylene-Q;

-O-CH_2-CH(OH)-CH_2-O-;

-Q-C_2-C_{12}alkylene-Q-CO-C_vH_{2v}-O-;

-O-C_2-C_{12}alkylene-O-CH_2-CH(OH)-CH_2-O-;

Q-phenylene-Q or

Q-phenylene-D-phenylene-Q with D being C_1-C_4alkylene, O, S, SO or SO_2;

L as a trivalent group is Q-capped C_3-C_{12}alkanetriyl, a trivalent residue of a hexose or a hexitol, or a group $(\text{-O-CH}_2)_3\text{C-CH}_2\text{OH}$; -Q-$C_aH_{2a}$-N($C_bH_{2b}$-Q-)-$C_cH_{2c}$-Q-;

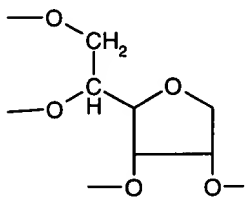
-Q-C_3-C_{12}alkanetriyl(-Q-CO-C_vH_{2v}-O-)$_2$;

-O-C_3-C_{12}alkanetriyl(-O-CH_2-CH(OH)-CH_2-O-)$_2$; and

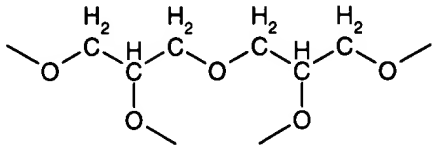
L as a tetravalent group is a tetravalent residue of a hexose or a hexitol;

-Q-C_4-C_{12}alkanetetryl(-Q-CO-C_vH_{2v}-O-)$_3$;

-O-C_4-C_{12}alkanetetryl(-O-CH_2-CH(OH)-CH_2-O-)$_3$; Q-capped C_4-C_{12}alkanetetryl; a group



or a group



;

M is an r-valent metal cation;

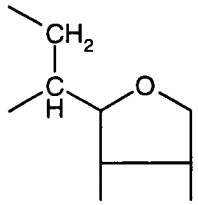
Q is oxygen or -NH-;

X is a direct bond, oxygen, sulphur or -NR_{31}- ;

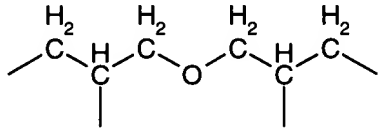
Z is a linking group of valency (k+1) and is as a divalent group C_2-C_{12}alkylene; Q-interrupted C_4-C_{12}alkylene; phenylene or phenylene-D-phenylene with D being C_1-C_4alkylene, O, S, SO or SO_2;

Z as a trivalent group is C_3-C_{12}alkanetriyl, a trivalent residue of a hexose or a hexitol, a group (-CH_2)$_3$C-CH_2OH, or a group -C_aH_{2a}-N(C_bH_{2b}-)-C_cH_{2c}-; and

Z as a tetravalent group is a tetravalent, carbon-ended residue of a hexose or a hexitol, C_4-C_{12}alkanetetryl, a group



or a group



;

a, b, c and k independently are 1, 2 or 3;

m is 0 or a number from the range 1-12;

n is 1 or 2;

q is 1, 2, 3, 4, 5 or 6;

r is 1, 2 or 3; and

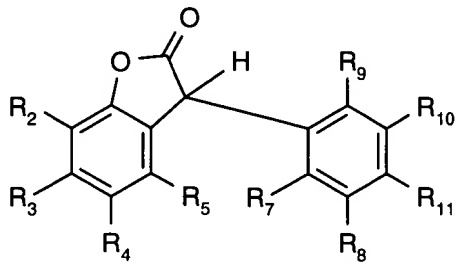
s is 0, 1 or 2;

v is 1, 2, 3, 4, 5, 6, 7 or 8;

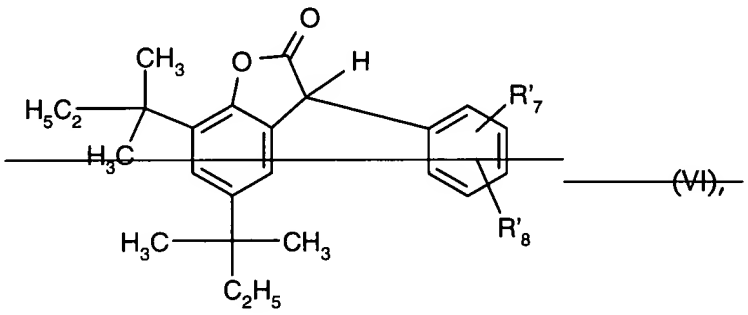
provided that, when R_7 is hydroxy, alkanoyloxy or alkanoyloxy interrupted by O, S or N(R_{14}) and R_9 is hydrogen, R_{10} is not identical with R_4; and when R_9 is hydroxy, alkanoyloxy or alkanoyloxy interrupted by O, S or N(R_{14}) and R_7 is hydrogen, R_8 is not identical with R_4.

into an interlayer between the light sensitive silver halide emulsion layers thus scavenging the oxidized form of developer when migrating from the light sensitive silver halide emulsion layer in which it has been formed to the interlayer.

14. (2X amended) Compound of the formula V ~~or VI~~



(V),



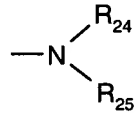
~~(VI),~~

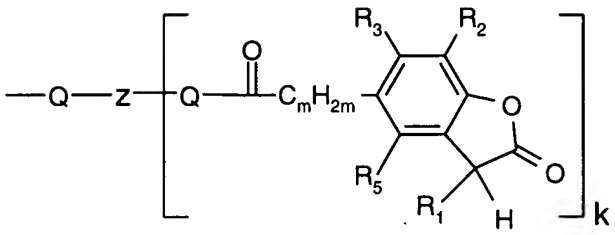
wherein

R_4 is $-O-(C_vH_{2v})-COR_{15}$; $-O-(CH_2)_q-OR_{32}$;

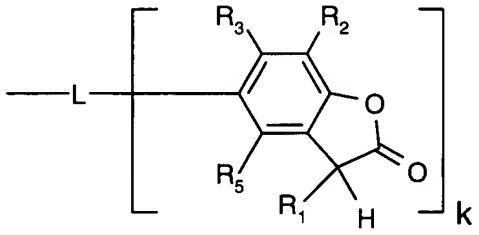
$-OCH_2-CH(OH)-CH_2-R_{15}$; or $-OCH_2-CH(OH)-CH_2-OR_{32}$;

~~R'_7 is C_1-C_4alkyl and R'_8 is hydrogen or C_1-C_4alkyl;~~

R_{15} is hydroxy, $\left[-O^- \frac{1}{r} M^{r+}\right]$, C_1-C_{20}alkoxy; C_3-C_{20}alkoxy interrupted by O and/or substituted by a radical selected from OH, phenoxy, C_7-C_{15}alkylphenoxy, C_7-C_{15}alkoxyphenoxy; or R_{15} is C_5-C_{12}cycloalkoxy; C_7-C_{17}phenylalkoxy; phenoxy;  ; or a group of formula IIIa or IIIb;



(IIIa);



(IIIb);

R_{32} is C_1-C_{18}alkanoyl; C_1-C_8alkanoyl substituted by phenyl or C_7-C_{15}alkylphenyl; C_3-C_{18}alkenoyl; cyclohexylcarbonyl; or naphthylcarbonyl;

L is a linking group of valency (k+1) and is, as a divalent group,

-O-;

Q-C_2-C_{12}alkylene-Q;

-O-CH_2-CH(OH)-CH_2-O-;

-Q-C_2-C_{12}alkylene-Q-CO-C_vH_{2v}-O-;

-O-C_2-C_{12}alkylene-O-CH_2-CH(OH)-CH_2-O-;

Q-phenylene-Q or

Q-phenylene-D-phenylene-Q with D being C_1-C_4alkylene, O, S, SO or SO_2;

L, as a trivalent group, is Q-capped C_3-C_{12}alkanetriyl, a trivalent residue of a hexose or a hexitol, or a group $(-O-CH_2)_3C-CH_2OH$; -Q-C_aH_{2a}-N(C_bH_{2b}-Q-)-C_cH_{2c}-Q-;

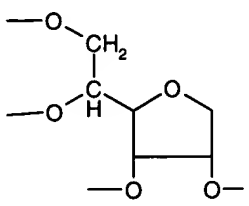
-Q-C_3-C_{12}alkanetriyl(-Q-CO-C_vH_{2v}-O-)$_2$;

-O-C_3-C_{12}alkanetriyl(-O-CH_2-CH(OH)-CH_2-O-)$_2$; and

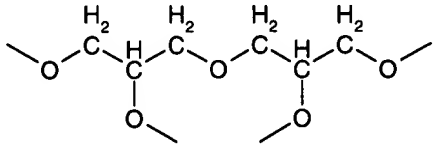
L, as a tetravalent group, is a tetravalent residue of a hexose or a hexitol;

-Q-C_4-C_{12}alkanetetryl(-Q-CO-C_vH_{2v}-O-)$_3$;

-O-C_4-C_{12}alkanetetryl(-O-CH_2-CH(OH)-CH_2-O-)$_3$; Q-capped C_4-C_{12}alkanetetryl; a group



or a group



;

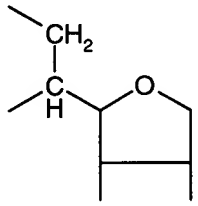
Q is oxygen or -NH-,

Z is a linking group of valency (k+1) and is as a divalent group C_2-C_{12}alkylene, Q-interrupted C_4-C_{12}alkylene, phenylene or phenylene-D-phenylene with D being C_1-C_4alkylene, O, S, SO or SO_2;

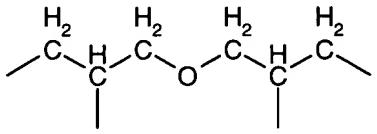
Z, as a trivalent group, is C_3-C_{12}alkanetriyl, a trivalent residue of a hexose or a hexitol, a group (-CH_2)$_3$C-CH_2OH, or a group -C_aH_{2a}-N(C_bH_{2b}-)-C_cH_{2c}-; and

Z, as a tetravalent group, is a tetravalent residue of a hexose or a hexitol, C_4-C_{12}alkanetetryl, a

group



or a group



;

a, b, c and k independently are 1, 2 or 3,

m is 0 or a number from the range 1-12,

s is 1 or 2,

v is 1, 2, 3, 4, 5, 6, 7 or 8;

and all other residues are as defined in claim 1 for formula I if n is 1.

15. **(amended)** Process for stabilizing an organic material against deterioration by light, oxygen and/or heat, which process comprises incorporating a compound of the formula V ~~and/or VI~~ according to claim 14 as stabilizer into said organic material.